

CLAIMS

1. A system for delivering a staple to a locus of an artery, comprising
a delivery conduit for inserting into the lumen of an artery through which
5 conduit a staple can be delivered to the locus, and
means for translating axial advancement of the delivery conduit through the
artery into movement of the distal end of the delivery conduit away from the
longitudinal axis of the artery and towards the artery wall.
- 10 2. A system as claimed in claim 1, wherein said means for translating comprises
an elongate element for inserting into said artery and means for coupling the elongate
element and the delivery conduit *in situ*, the elongate element being stiffer than at
least the distal end of the delivery conduit.
- 15 3. A system as claimed in claim 2, wherein the elongate element is a guide wire
or a catheter threaded on a guide wire.
4. A system as claimed in claim 2 or 3, wherein the means for coupling
comprises an integral link between the elongate element and the delivery conduit.
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5. A system as claimed in claim 4, wherein the elongate element, the delivery
conduit and the link are formed from the same material.
6. A system as claimed in claim 2 or 3, wherein the means for coupling
25 comprises a tie for tying the elongate element and the delivery conduit together.
7. A system as claimed in claim 6, wherein the tie is in the form of a figure-of-
eight lashing.

8. A system as claimed in claim 6 or 7, wherein the elongate element has apertures therein through which the tie is threaded.

9. A system as claimed in any of claims 6 to 8, wherein the tie is attached to the delivery conduit and/or the elongate element by means of adhesive, a crimp, a heat-shrink sleeve, or any combination thereof.

10. A system as claimed in any preceding claim, wherein the delivery conduit has an inner conduit through which a staple may be advanced to deliver it to the locus.

11. A system as claimed in any of claims 2 to 10, additionally comprising means for immobilising the elongate element in the lumen of the artery.

12. A system as claimed in claim 11, wherein the means for immobilising comprises an inflatable balloon.

13. A system as claimed in claim 12, wherein the elongate element is a catheter for the inflatable balloon mounted on a guide wire.

14. A system as claimed in claim 12 or 13, wherein the balloon is arranged so that, in use, inflation of the balloon assists movement of the distal end of the delivery conduit away from the longitudinal axis of the artery and towards the artery wall.

15. A system as claimed in any of claims 12 to 14, wherein the balloon is adapted so that, when inflated *in situ*, it does not fully occlude the lumen of the artery, but rather allows blood to flow past the balloon.

16. A system as claimed in any preceding claim, additionally comprising a sheath in which the other components of the system can be stored.

17. A method for delivering a staple to a locus of an artery, comprising carrying out the following the steps in any convenient order:
- (i) loading a staple into a delivery conduit,
 - (ii) inserting the conduit into the lumen of an artery, together with means for translating axial advancement of the delivery conduit through the artery into movement of the distal end of the delivery conduit away from the longitudinal axis of the artery and towards the artery wall,
 - (iii) positioning the distal end of the conduit near the locus,
 - (iv) advancing the conduit through the artery relative to said means for translating movement in order to move the distal end of the conduit away from the longitudinal axis of the artery and towards the artery wall, and
 - (v) ejecting the staple from the conduit at the locus.
18. A method as claimed in claim 17, wherein the means for translating is as defined in any of claims 2 to 9.
19. A method as claimed in claim 17 or 18, wherein a means for immobilising as claimed in any of claims 11 to 15 is employed prior to ejection of the staple.
20. A method as claimed in any of claims 17 to 19, wherein the staple is ejected when the distal end of the conduit makes an angle from 45° to 90° with the longitudinal axis of the artery.